

CHAPTER 63
MONITORING, ANALYTICAL AND REPORTING REQUIREMENTS

[Prior to 7/1/83, DEQ Ch 18]

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—63.1(455B) Guidelines establishing test procedures for the analysis of pollutants. Only the procedures prescribed in this chapter shall be used to perform the measurements indicated in an application for an operation permit submitted to the department, a report required to be submitted by the terms of an operation permit, and a certification issued by the department pursuant to Section 401 of the Act.

63.1(1) Identification of test procedures.

a. The following is adopted by reference: 40 Code of Federal Regulations (CFR) Part 136, revised as of July 1, 2003.

b. All parameters for which testing is required by a wastewater discharge permit, permit application, or administrative order, except operational performance testing, must be analyzed using approved methods specified in 40 CFR Part 136.3 or, under certain circumstances, by other methods that may be more advantageous to use when such other methods have been previously approved by the director pursuant to 63.1(2). Samples collected for operational testing pursuant to 63.3(4) need not be analyzed by approved analytical methods; however, commonly accepted test methods should be used.

63.1(2) Application for alternate test procedures.

a. Any person may apply to the EPA regional administrator through the director for approval of an alternate test procedure.

b. The application for an alternate test procedure may be made by letter and shall:

(1) Provide the name and address of the responsible person or firm holding or applying for the permit (if not the applicant) and the applicable ID number of the existing or pending permit and type of permit for which the alternate test procedure is requested and the discharge serial number, if any.

(2) Identify the pollutant or parameter for which approval of an alternate testing procedure is being requested.

(3) Provide justification for using testing procedures other than those specified in 40 CFR Part 136.3.

63.1(3) Required containers, preservation techniques and holding times. All samples collected in accordance with self-monitoring requirements as defined in an operation permit shall comply with the container, preservation techniques, and holding time requirements as specified in Table VI. Sample preservation should be performed immediately upon collection, if feasible.

63.1(4) All laboratories conducting analyses required by this chapter must be certified in accordance with 567—Chapter 83 except that routine, on-site monitoring for pH, temperature, dissolved oxygen, total residual chlorine and other pollutants that must be analyzed immediately upon sample collection, settleable solids, physical measurements such as flow and cell depth, and operational monitoring tests specified in 63.3(4) are excluded from this requirement.

567—63.2(455B) Records of monitoring activities and results.

63.2(1) The permittee shall maintain records of all information resulting from any monitoring activities required in its operation permit.

63.2(2) Any records of monitoring activities and results shall include for all samples:

a. The date, exact place and time of sampling.

b. The dates analyses were performed.

c. Who performed the analyses.

d. The analytical techniques or methods used, and

e. The results of such analyses.

63.2(3) The permittee shall retain for a minimum of three years any records of monitoring activities and results including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records. The period of retention shall be considered to be extended during the course of any unresolved litigation or when requested by the director or the regional administrator.

567—63.3(455B) Minimum self-monitoring requirements in permits.

63.3(1) *Monitoring by organic waste dischargers.* The minimum self-monitoring requirements to be incorporated in operation permits for facilities discharging organic wastes shall be the appropriate requirements in Tables I, II, and IV. Additional monitoring may be specified in the operation permit based on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, industrial contribution to the system, complexity of the treatment process, history of noncompliance or any other factor which requires strict operational control to meet the effluent limitations of the permit.

63.3(2) *Monitoring by inorganic waste dischargers.* The minimum self-monitoring requirements to be incorporated in the operation permit for an inorganic waste discharge shall be the appropriate requirement in Table V. Additional monitoring may be specified in the operation permit based on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, complexity of the treatment process, history of noncompliance or any other factor which requires strict control to meet the effluent limitations of the permit.

63.3(3) *Monitoring of industrial contributors to publicly owned treatment works.* All major contributing industries as defined in 567—60.2(455B) and industrial contributors that are subject to national pretreatment standards shall be monitored in accordance with the requirements in Tables I, II and V, provided that the monitoring program of a publicly owned treatment works with a pretreatment program approved by the department may be used in lieu of the tables. The results of such monitoring shall be submitted to the department in accordance with the reporting requirements in the operation permit.

63.3(4) *Operational monitoring.* The minimum operational monitoring to be incorporated in permits shall be the appropriate requirements in Table III. These requirements reflect minimum indicators that any adequately run system must monitor. The department recognizes that most well-run facilities will be monitored more closely by the operator as appropriate to the particular system. However, the results of this monitoring need not be reported to the department. Operational monitoring requirements may be modified or reduced at the discretion of the director when adequate justification is presented by the permittee that the reduced or modified requirements will not adversely impact the operation of the facility. Additional operational monitoring may be specified in the operation permit based on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, complexity of the treatment process, history of noncompliance or any other factor that requires strict control to meet the effluent limitations of the permit.

567—63.4(455B) Effluent toxicity testing requirements in permits.

63.4(1) *Effluent toxicity testing.* All major municipal and industrial dischargers shall be required to carry out effluent toxicity testing. Minor dischargers may be required to conduct effluent toxicity tests based on a case-by-case evaluation of the impact of the discharge on the receiving stream or industrial contribution to the system. All dischargers required to conduct effluent toxicity tests shall conduct, at a minimum, one valid effluent toxicity test annually. The testing requirements will be placed in the operation permit for each discharger required to conduct this testing. Additional monitoring may be specified in the operation permit based on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, industrial contribution to the system, complexities of the treatment process, history of noncompliance or any other factor which requires strict operational control to meet the effluent limitations of the permit. Any effluent toxicity test completed by the department or other agency and conducted according to procedures stated or referenced in this rule may be used to determine compliance with an operational permit.

63.4(2) Testing procedures. Dischargers shall be required to conduct effluent toxicity tests in accordance with the following general requirements:

a. The effluent toxicity tests shall be performed using a 24-hour composite sample of the effluent collected at the location stated in the operation permit. All composite samples shall be delivered to the testing laboratory within a reasonable time (approximately 24 hours) after collection and all tests must commence within 36 hours following sample collection. The results of all effluent toxicity tests conducted using approved procedures, including any tests performed at a greater frequency than required in the operation permit, shall be submitted to the department, on Form 542-1381 provided by the department, within 30 days of completing the test.

b. All effluent toxicity tests shall be conducted using the test methodologies and protocols described within "Standard Operating Procedure: Effluent Toxicity Testing, Iowa Department of Natural Resources," March 1991. This procedure is adopted as part of this subrule and is filed as part of this subrule with the administrative rules coordinator. This procedure is an essential part of the testing procedures and is available upon request to the department although not printed in this subrule. Laboratories performing the effluent toxicity tests shall also have a quality assurance plan.

c. All effluent toxicity tests shall be performed using the water flea (*Ceriodaphnia dubia*), and the fathead minnow (*Pimephales promelas*).

d. Effluent toxicity tests shall include, at a minimum, two different concentrations of effluent. One test shall consist of 100 percent effluent, and a second test shall be a diluted effluent sample as defined. A control test, consisting of 100 percent culture water for each respective organism shall also be used. The test shall last for 48 hours at which time the mortality will be determined for all tests.

e. All effluent toxicity tests shall be of the pass/fail type.

63.4(3) If there is a positive toxicity test result in the diluted effluent sample from a valid effluent toxicity test, the following requirements apply unless the exception in paragraph "c" of this subrule is applicable.

a. At a minimum, the discharger shall be required to conduct quarterly effluent toxicity tests until three successive tests are determined not to be positive, after which the normal annual testing shall be resumed.

b. If the discharger has two successive positive valid diluted effluent toxicity test results or three positive test results out of five valid diluted effluent toxicity tests, the discharger shall be required to conduct a toxicity reduction evaluation (TRE). The discharger may be required to carry out instream monitoring or other analysis in conjunction with the TRE. At any time during the course of conducting a TRE there are three consecutive follow-up toxicity test results for the diluted sample which are not positive, the facility will be considered in compliance and work on the TRE may cease. Annual testing for effluent toxicity shall then resume. Nothing in these rules shall preclude the department from taking enforcement action beyond that described in these rules.

c. When the pretest chemical analysis for un-ionized ammonia nitrogen (NH₃-N) or total residual chlorine (TRC) on the diluted effluent sample exceeds the concentrations given below, a positive test result is likely to have been caused by high concentrations of NH₃ or TRC, and the test result will not be used to determine if follow-up testing is needed.

- (1) Un-ionized Ammonia Nitrogen—0.9 mg/l
- (2) TRC—0.1 mg/l

567—63.5(455B) Self-monitoring and reporting for animal feeding operations.

63.5(1) The following self-monitoring requirements may be imposed on an animal-feeding operation in any operation permit issued for such an operation.

- a. Measurement of liquid level in a waste storage facility on a periodic basis.
- b. Measurement of daily precipitation, as appropriate.
- c. Sampling and analysis of groundwater as necessary to determine effects of wastewater application.
- d. Other measurements necessary to evaluate the adequacy of a waste disposal system.

63.5(2) Reports of the self-monitoring results shall be submitted to the department quarterly.

567—63.6(455B) Report of bypass.

63.6(1) Except for bypasses that occur as a result of mechanical failure or acts beyond the control of the owner, owners of waste disposal systems shall obtain written permission from the department prior to any bypassing of any sewage or wastes from the waste disposal system.

63.6(2) In the event that bypassing of sewage or waste occurs as a result of mechanical failure or acts beyond the control of the owner (other than rain or other precipitation), said owner shall notify the department by telephone of the bypassing within 12 hours of the time of the discovery of the bypassing. Notification shall include the reasons for the bypass and expected duration. The owner shall comply with the instructions of the department calculated to minimize the effect of the bypassing on the receiving water of the state.

63.6(3) Bypasses other than those described in this rule shall be reported in the records of operation.

567—63.7(455B) Submission of records of operation. Records of operation shall be submitted to the department within 15 days following the close of the reporting period specified in 63.8(455B) and in accordance with monitoring requirements derived from this chapter and incorporated in the operation permit.

567—63.8(455B) Frequency of submitting records of operation. Except as provided in subrule 63.1(2), records of operation required by these rules shall be submitted at monthly intervals. The department may vary the interval at which records of operation shall be submitted in certain cases. Variation from the monthly interval shall be made only under such conditions as the department may prescribe in writing to the person concerned.

567—63.9(455B) Content of records of operation. Records of operation shall include the results of all monitoring specified in or authorized by this chapter and incorporated in the operation permit. Monitoring performed but not specified in the operation permit shall be recorded and maintained in accordance with 63.2(455B).

567—63.10(455B) Records of operation forms. Records of operation forms shall be those provided by the department unless its forms are not applicable and in such case the records of operation shall be submitted on such other forms as are agreeable to the department.

567—63.11(455B) Certification and signatory requirements in the submission of records of operation. All records of operation as required by these rules shall include certification which attests that all information contained therein is representative and accurate. Each record of operation shall contain the signature of a duly authorized representative of the corporation, partnership or sole proprietorship, municipality, or public facility which has proprietorship of the wastewater treatment or disposal system.

Table I Minimum Self-Monitoring in Permits for Organic Waste Discharges
Controlled Discharge Wastewater Treatment Plants

Wastewater Parameter	Sampling Location	Sample Type ⁵	Frequency by P.E. ¹				
			< 100	101-500	501-1,000	1,001-3,000	> 3,000
Flow ²	Raw	24-Hr Total	1/Week	Daily	Daily	Daily	Daily
	Final	Instantaneous	2/Week	Daily During Periods of Discharge			
BOD ₅ ³	Raw	24-Hr Composite	--	--	--	1/3 Months	1/Month
	Final	Grab	1/6 Months	1/Month	1/2 Weeks	1/Week	2/Week
Suspended Solids	Raw	24-Hr Composite	--	--	--	1/3 Months	1/Month
	Final	Grab	1/6 Months	1/6 Months	1/6 Months	1/3 Months	1/Month
Ammonia Nitrogen ⁴	Final	Grab	1/6 Months	1/Month	1/2 Weeks	1/Week	2/Week
pH	Raw	Grab	--	--	--	1/3 Months	1/Month
	Final	Grab	1/6 Months	1/Month	1/2 Weeks	1/Week	2/Week

Explanation of Superscripts

- 1 - The P.E. shall be computed on the basis of the original engineering design criteria for the facility, and any modifications thereof. Where such design criteria are not available, the P.E. shall be computed using 0.167 pounds of BOD per capita per day.
- 2 - Facilities serving a population equivalent less than 100 are not required to provide continuous flow measurement but are required to provide manual flow measurement at the specified frequency. Facilities serving a population equivalent greater than 100 are required to provide continuous flow measurement of the raw waste but need only provide manual flow measurement on the final effluent. Acceptable flow measurement and recording techniques shall be those described in the "Iowa Wastewater Facilities Design Standards," Chapter 14 (14.7.2).
- 3 - In addition to the sampling required above, for controlled discharge facilities following a period of storage for more than six weeks, a grab sample of the lagoon cell contents collected near the outfall structure shall be analyzed at least two weeks prior to an anticipated discharge to demonstrate that the wastewater is of such quality to meet the effluent limitations in the permit. Where the analyses indicate that wastewater quality does not meet the effluent limitations, storage shall be continued until further analyses indicate the wastewater quality is satisfactory for discharge.
- 4 - Ammonia nitrogen monitoring is required only for facilities with an ammonia effluent limitation.
- 5 - The meanings of sample types are:

"Grab Sample" means a representative, discrete, portion of the sewage, industrial waste, other waste, surface water or groundwater taken without regard to flow rate.

"24-Hr Composite" means:

- a. For facilities where no significant industrial waste is present, a sample made by collecting a minimum of six grab samples taken four hours apart and combined in proportion to the flow rate at the time each grab sample was collected. (Generally, grab samples should be collected at 8 a.m., 12 a.m. (noon), 4 p.m., 8 p.m., 12 p.m. (midnight) and 4 a.m. on weekdays (Monday through Friday) unless local conditions indicate another more appropriate time for sample collection.)
- b. For facilities where significant industrial waste is present, a sample made by collecting a minimum of 12 grab samples taken two hours apart and combined in proportion to flow rate at the time each grab sample was collected. (Generally, grab samples should be collected at 8 a.m., 10 a.m., 12 a.m. (noon), 2 p.m., 4 p.m., 6 p.m., 8 p.m., 10 p.m., 12 p.m. (midnight), 2 a.m., 4 a.m. and 6 a.m. on weekdays (Monday through Friday) unless local conditions indicate another more appropriate time for sample collection.)
- c. An automatic composite sampling device may also be used for collection of flow proportioned or time proportioned composite samples.

Table II Minimum Self-Monitoring in Permits for Organic Waste Discharges
Continuous Discharge Wastewater Treatment Plants

Wastewater Parameter	Sampling Location	Sample Type ^{4,6}	Frequency by P.E. ^{1,9}						
			< 100	101-500	501-1,000	1,001-3,000	3,001-15,000	15,001-105,000	> 105,000
Flow ²	Raw or Final	24-Hr Total	1/week	Daily	Daily	Daily	Daily	Daily	Daily
BOD ₅	Raw	24-Hr Comp.	---	---	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
	Final	24-Hr Comp.	1/3 Months	1/Month	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
Suspended Solids	Raw	24-Hr Comp.	---	---	1/3 Months	1/Month	1/Week	2-5/Week ⁷	7/Week
	Final	24-Hr Comp.	1/3 Months	1/3 Months	1/3 Months	1/Month	1/Week	2-5/Week ⁷	7/Week
Ammonia Nitrogen ³	Final	24-Hr Comp.	1/3 Months	1/Month	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
pH	Raw	Grab	---	---	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
	Final	Grab	1/3 Months	1/Month	1/Week	1/Week	2/Week	5/Week	7/Week
Fecal Coliform ⁵	Final	Grab	1/3 Months	1/3 Months	1/3 Months	1/3 Months	1/3 Months	1/3 Months	1/3 Months
Temperature	Raw	Grab	---	---	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
	Final	Grab	1/3 Months	1/Month	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
Settleable Solids ⁸	Final	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week

Explanation of Superscripts

- 1 - See Footnote #1, Table I.
- 2 - See Footnote #2, Table I.
- 3 - See Footnote #4, Table I.
- 4 - See Footnote #5, Table I.
- 5 - Analysis is required only when the effluent is being disinfected.
- 6 - For lagoons, 24-hour composite samples are not required on the final effluent, grab samples are acceptable.
- 7 - Generally, the frequency of sample collection and analysis shall be increased by 1/Week for each additional 30,000 P.E.
- 8 - Not required for industrial contributors to publicly owned treatment works.
- 9 - The requirements for industrial contributors shall be that specified for final effluent monitoring.

Table III Operational Monitoring Requirements in Permits

LAGOONS

Parameter	Sampling Location	Sample Type	Frequency by P.E. ¹						
			< 100	101-500	501-1,000	1,001-3,000	3,001-15,000	15,001-105,000	> 105,000
Cell Depth	Each Cell	Measurement	1/Week	1/Week	1/Week	2/Week	2/Week	2/Week	2/Week

AERATED LAGOONS

Dissolved Oxygen	Cell Contents	Grab	1/Month	1/2 Weeks	1/2 Weeks	1/Week	2/Week	2/Week	2/Week
------------------	---------------	------	---------	-----------	-----------	--------	--------	--------	--------

TRICKLING FILTERS

Recirculation	---	Measurement	1/Week	1/Week	1/Week	2/Week	3/Week	5/Week	7/Week
---------------	-----	-------------	--------	--------	--------	--------	--------	--------	--------

ACTIVATED SLUDGE

MLSS	Aeration Basin Contents	Grab	1/Month	1/Week	1/Week	2/Week	3/Week	5/Week	7/Week
Dissolved Oxygen	Aeration Basin Contents	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week
Temperature	Aeration Basin Contents	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week
30-Minute Settleability	Aeration Basin Contents	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week

ANAEROBIC DIGESTER

Temperature	Digester Contents	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week
pH	Digester Contents	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week
Alkalinity	Digester Contents	Grab	---	---	---	1/Week	1/Week	2/Week	2/Week
Volatile Acids	Digester Contents	Grab	---	---	---	1/Week	1/Week	2/Week	2/Week

AEROBIC DIGESTER

Dissolved Oxygen	Digester Contents	Grab	---	---	1/Week	2/Week	3/Week	5/Week	7/Week
------------------	-------------------	------	-----	-----	--------	--------	--------	--------	--------

CHLORINATION FACILITIES

Total Residual Chlorine	Final Effluent	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week
-------------------------	----------------	------	--------	--------	--------	--------	--------	--------	--------

Explanation of Superscripts

- 1 - See Footnote #1, Table I.
- 2 - Alternative test methods for operational monitoring:

Dissolved Oxygen - Pao Titration

MLSS - Spectrophotometric, Centrifuge

pH - Colorimetric Comparator

30-Minute Settleability - Standard Methods Test 213C

Alkalinity - Standard Methods Test 403

Volatile Acids - Standard Methods Test 504A

Residual Chlorine - Colorimetric Comparator

Table IV Minimum Self-Monitoring in Permits for Land Application Systems

Wastewater Parameter	Sampling Location	Sample Type ²	Flow in Million Gallons Per Day ¹		
			< 0.5	0.5 - 2.0	> 2.0
Nitrate Nitrogen	Monitoring Wells ³	Grab	1/3 Months	1/2 Months	1/Month
Dissolved Solids	Monitoring Wells ³	Grab	1/3 Months	1/2 Months	1/Month
Fecal Coliform	Monitoring Wells ³	Grab	1/3 Months	1/2 Months	1/Month

Volume Applied	Final ⁴	24-Hr Total	Daily	Daily	Daily
Total Nitrogen	Final ⁴	24-Hr Comp.	1/3 Months	1/2 Months	1/Month
Total Phosphorus	Final ⁴	24-Hr Comp.	1/3 Months	1/2 Months	1/Month

Explanation of Superscripts

- 1 - The flow to be used for determining sample frequency shall be the original engineering design, average wet weather flow, or any modifications thereof. The design flow shall be the raw wastewater flow prior to any treatment units.
- 2 - See Footnote #5, Table I.
- 3 - Monitoring wells shall be sampled according to the procedures described in Table VI.
- 4 - Final shall be the final effluent from the storage facility prior to land application.

Table V Minimum Self-Monitoring in Permits for Inorganic Waste Discharges

Category ¹	Treatment Type, Size	Wastewater Parameter	Sample Frequency	Sample Type ²	Sample Location
I	Non-Contact Cooling Water	Flow	1/Month	24-Hr Total	Final
		Temperature	1/Month	Grab	Final
		pH	1/Month	Grab	Final
II	Mining Activities				
A.	Quarry Dewatering	Suspended Solids	1/Year	Grab	Final
		pH	1/Year	Grab	Final
B.	Rock Washing	Suspended Solids	1/Month	Grab	Final
		pH	1/Month	Grab	Final
		Settleable Solids	1/Month	Grab	Final
C.	Coal Mining	Suspended Solids	1/3 Months	Grab	Final
		pH	1/Month	Grab	Final
		Iron	1/3 Months	Grab	Final
		Manganese	1/3 Months	Grab	Final
		Settleable Solids	1/Month	Grab	Final
III	Inorganic Wastes ³				
A.	Less than 0.5 MGD	Flow	1/Month	24-Hr Total	Final
		Other Pollutants	1/Month	Grab	Final
B.	Greater than 0.5 MGD	Flow	Daily	24-Hr Total	Final
		Other Pollutants	1/Week	Grab	Final
IV	Steam Electric Power Plants				
A.	Condenser Cooling	Flow	Daily	24-Hr Total	Final
		pH	1/Week	Grab	Final
		Temperature	Daily	Grab	Final
		Free Available Chlorine	1/2 Weeks	Grab	Final
B.	Coal Pile Runoff	Suspended Solids	1/Month	Grab	Final
		pH	1/Month	Grab	Final
C.	Other Wastes	Suspended Solids	1/Month	Grab	Final
		Oil and Grease	1/Month	Grab	Final
		pH	1/Month	Grab	Final

Table V Minimum Self-Monitoring in Permits for Inorganic Waste Discharges - Continued

Category ¹	Treatment Type, Size	Wastewater Parameter	Sample Frequency	Sample Type ²	Sample Location
V	Toxic Waste Discharges ⁴				
A.	A permit limitation of less than 1 lb. toxic discharge allowed or no mass limitations (No Treatment)	Toxics	1/Month	24-Hr Composite	Final
		Flow	1/Week	24-Hr Total	Final
B.	A permit limitation of less than 1 lb. toxic discharge allowed (Lagoon)	Toxics	1/2 Weeks	24-Hr Composite	Final
		Flow	1/Week	24-Hr Total	Final
C.	A permit limitation of less than 1 lb. toxic discharge allowed (Mechanical Treatment)	Toxics	1/Week	24-Hr Composite	Final
		Flow	1/Week	24-Hr Total	Raw or Final
D.	A permit limitation of 1 - 5 lbs toxic discharge allowed	Toxics	2/Week	24-Hr Composite	Final
		Flow	2/Week	24-Hr Total	Raw or Final
E.	A permit limitation of 5 - 10 lbs toxic discharge allowed	Toxics	3/Week	24-Hr Composite	Final
		Flow	Daily	24-Hr Total	Raw or Final
F.	A permit limitation of greater than 10 lbs special discharge allowed	Toxics	5 - 7 Weeks	24-Hr Composite	Final
		Flow	Daily	24-Hr Total	Raw or Final

Explanation of Superscripts

- 1 - The above categories are not mutually exclusive. Some facilities may fall within more than one category, in which case a combination of monitoring requirements from both categories will be used in establishing permit monitoring requirements.
- 2 - See Footnote #5, Table I.
- 3 - For Category III facilities, the size of the facility shall be based on the original engineering design, average wet weather flow, for the raw wastewater.
- 4 - Only those parameters demonstrated, or suspected, as a pollutant in the discharge shall be required to be monitored. Toxics include the 129 priority pollutants listed at 40 CFR Part 122.21, Appendix D (FR 14177) April 1, 1983.

Table VI Required Containers, Preservation Techniques, and Holding Times

PARAMETER	CONTAINER ¹	PRESERVATIVE ²	MAXIMUM HOLDING TIME ³
<u>Bacterial Tests</u>			
1. Coliform, fecal and total	P,G	Cool, 4°C 0.008% Na ₂ S ₂ O ₃ ⁴	6 hours
2. Fecal streptococci	P,G	Cool, 4°C 0.008% Na ₂ S ₂ O ₃ ⁴	6 hours
<u>Chemical Tests</u>			
3. Acidity	P,G	Cool, 4°C	14 days
4. Alkalinity	P,G	Cool, 4°C	14 days
5. Ammonia	P,G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
6. Biochemical oxygen demand	P,G	Cool, 4°C	48 hours
7. Biochemical oxygen demand, carbonaceous	P,G	Cool, 4°C	48 hours
8. Bromide	P,G	None required	28 days
9. Chemical oxygen demand	P,G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
10. Chloride	P,G	None required	28 days
11. Chlorine, total residual	P,G	None required	Analyze immediately
12. Color	P,G	Cool, 4°C	48 hours
13. Cyanide, total and amenable to chlorination	P,G	Cool, 4°C NaOH to pH > 12 0.6g ascorbic acid ⁴	14 days ⁵
14. Cyanide, free	P,G	Cool, 4°C NaOH to pH > 12 0.6g ascorbic acid ⁴	4 hours
15. Fluoride	P	None required	28 days
16. Hardness	P,G	HNO ₃ to pH < 2	6 months
17. Hydrogen ion (pH)	P,G	None required	Analyze immediately
18. Kjeldahl and organic nitrogen	P,G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
<u>Metals</u>			
19. Chromium VI	P,G	Cool, 4°C	24 hours
20. Mercury	P,G	HNO ₃ to pH < 2	28 days
21. Metals, except above	P,G	HNO ₃ to pH < 2	6 months
22. Nitrate	P,G	Cool, 4°C	48 hours
23. Nitrate-nitrite	P,G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
24. Nitrite	P,G	Cool, 4°C	48 hours
25. Oil and grease	G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days

Table VI Required Containers, Preservation Techniques, and Holding Times - Continued

PARAMETER		CONTAINER ¹	PRESERVATIVE ²	MAXIMUM HOLDING TIME ³
<u>Metals</u>				
26.	Organic carbon	P,G	Cool, 4°C Cl or H ₂ SO ₄ to pH < 2	28 days
27.	Orthophosphate	P,G	Filter immediately Cool, 4°C	48 hours
28.	Oxygen, dissolved probe	G Bottle and top	None required	Analyze immediately
	Winkler	G Bottle and top	Fix on site and store in dark	8 hours
29.	Phenols	G only	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
30.	Phosphorus (elemental)	G	Cool, 4°C	48 hours
31.	Phosphorus, total	P,G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
32.	Residue, total	P,G	Cool, 4°C	7 days
33.	Residue, filterable	P,G	Cool, 4°C	7 days
34.	Residue, Nonfilterable (TSS)	P,G	Cool, 4°C	7 days
35.	Residue, settleable	P,G	Cool, 4°C	48 hours
36.	Residue, volatile	P,G	Cool, 4°C	7 days
37.	Silica	P	Cool, 4°C	28 days
38.	Specific conductance	P,G	Cool, 4°C	28 days
39.	Sulfate	P,G	Cool, 4°C	28 days
40.	Sulfide	P,G	Cool, 4°C, add zinc acetate plus sodium hydroxide to pH > 9	7 days
41.	Sulfite	P,G	None required	Analyze immediately
42.	Surfactants	P,G	Cool, 4°C	48 hours
43.	Temperature	P,G	None required	Analyze immediately
44.	Turbidity	P,G	Cool, 4°C	48 hours
45.	Sampling Procedures for Monitoring Wells			
	A. Measure depth from top of well head casing to water table			
	B. Calculate quantity of water to be flushed from well using the formula:			
	Gallons to be pumped = 0.221 d ² h, where			
	d = well diameter in inches			
	h = depth in feet of standing water in well prior to pumping			
	C. Pump well			
	D. Measure depth from well hand casing to water table after pumping			
	E. Wait for well to recharge to or near static water level prior to sampling			

Table VI Notes

1. Polyethylene (P) or Glass (G).
2. Sample preservation should be performed immediately upon sample collection. For composite samples, each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then samples may be preserved by maintaining at 4°C until compositing and sample splitting is completed.
3. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid. Samples may be held for longer periods only if the permittee, or monitoring laboratory, has data on file to show that the specific types of samples under study are stable for the longer time, and has received a variance from the executive director. Some samples may not be stable for the maximum time period given in the table. A permittee, or monitoring laboratory, is obligated to hold the sample for a shorter time if knowledge exists to show this is necessary to maintain sample stability.
4. Should only be used in the presence of residual chlorine.
5. Maximum holding time is 24 hours when sulfide is present. Optionally, all samples may be tested with lead acetate paper before the pH adjustment in order to determine if sulfide is present. If sulfide is present, it can be removed by the addition of cadmium carbonate powder until a negative spot test is obtained. The sample is filtered and then NaOH is added to pH 12.
6. Samples should be filtered immediately onsite before adding preservative for dissolved metals.

These rules are intended to implement Iowa Code section 455B.173.

[Filed 12/21/72]

[Filed 7/1/77, Notice 3/23/77—published 7/27/77, effective 8/31/77]

[Filed emergency 6/3/83—published 6/22/83, effective 7/1/83]

[Filed 4/20/84, Notice 2/15/84—published 5/9/84, effective 6/13/84]

[Filed emergency 11/14/86—published 12/3/86, effective 12/3/86]

[Filed 4/26/91, Notice 10/17/90—published 5/15/91, effective 6/19/91]

[Filed 3/22/96, Notice 11/8/95—published 4/10/96, effective 5/15/96]

[Filed without Notice 9/20/96—published 10/9/96, effective 11/13/96]

[Filed without Notice 9/19/97—published 10/8/97, effective 11/12/97]

[Filed without Notice 2/5/99—published 2/24/99, effective 3/31/99]

[Filed without Notice 10/28/99—published 11/17/99, effective 12/22/99]

[Filed without Notice 10/27/00—published 11/15/00, effective 12/20/00]

[Filed without Notice 9/27/01—published 10/17/01, effective 11/21/01]

[Filed without Notice 9/25/02—published 10/16/02, effective 11/20/02]

[Filed without Notice 9/25/03—published 10/15/03, effective 11/19/03]